

# FOOD PRODUCT PACKAGE HAVING NESTED CUP AND CUP HOLDER

## FIELD OF THE INVENTION

5       The invention relates to a package for containing a dry food product, such as instant coffee, powdered cocoa, dehydrated soup, etc., wherein the package includes a cup in which the food product is served after mixing the food product with water.

## BACKGROUND OF THE INVENTION

Some convenience food products and hot beverages, such as coffee, hot cocoa, or  
10      soup, are often prepared from dry starting ingredients by adding hot water. For instance, one existing commercial product comprises dry soup mix contained in an expanded polystyrene (EPS) cup and sealed closed by a membrane. To prepare and serve the soup, the membrane is removed and hot water is added to the cup. The soup can be eaten out of the EPS cup. Expanded polystyrene offers the advantage of being a good thermal  
15      insulator, so that the cup can be held comfortably in the hand as the soup is consumed.

Instant coffee and hot cocoa also are often prepared and served in expanded polystyrene cups, although typically the dry instant coffee or powdered cocoa mix are not packaged in the cup, but rather are packaged separately in jars or single-serving packets.

While EPS is a good thermal insulator, it has other drawbacks. For instance, EPS  
20      by itself is a relatively poor oxygen and water vapor barrier. Thus, for packaging food products that must be protected from oxygen and/or water vapor infiltration, it is generally necessary to use barrier EPS, which comprises a layer of EPS laminated to a barrier film. Widespread recycling of consumer food packages made of barrier EPS has not yet taken hold, which means such packages wind up in landfills.

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## SUMMARY OF THE INVENTION

The present invention addresses the above needs and achieves other advantages, by providing a package for a food product such as instant coffee, powdered cocoa, dry  
30      soup mix, or the like, that is prepared and served in the package, wherein the package can

be formed of materials that are widely recycled. In preferred embodiments the package can be thermoformed from polypropylene or the like.

In one embodiment of the invention, the package comprises a primary container formed as a tapered plastic cup, and a cup holder also formed as a tapered plastic cup.

5 The cup holder nests inside the primary container when the food product is initially placed in the package and the package is sealed. The food product can be contained in the bottom of the primary container, or alternatively in the bottom of the cup holder. A membrane is sealed across the top of the cup holder when it contains the food product. A shrink film can envelope an upper portion, or all, of the package to hold the primary  
10 container and cup holder together and also prevent infiltration of debris, water vapor, and gases. The package is convertible into a serving configuration by removing the shrink film and removing the cup holder from the primary container. If the food product is contained in the cup holder, the membrane is peeled off and the food product is poured from the cup holder into the primary container. Then the primary container is nested  
15 inside the cup holder, and hot or cold water is added and mixed with the food product. The cup holder provides thermal insulation so as to protect the consumer's hand from directly contacting the primary container when the package is held in the hand. Thus, hot beverages or food can be consumed from the package while the package is held comfortably in the hand.

20 The primary container includes a radially outwardly projecting rim at the top. The cup holder has a radially outwardly projecting flange at its top end, and a skirt depends from the flange to form an annular channel between the skirt and the side wall of the cup holder. In the packaged configuration of the package, when the cup holder is nested into the primary container, the rim of the primary container is received up into the  
25 channel of the cup holder. A snap fit between the cup holder and primary container can be provided, if desired. The skirt preferably is flared outwardly toward its lower end, and includes an outwardly projecting flange at its lower end, to form a relatively wide structure that is easily gripped. The skirt and flange also help provide stability to the package when inserted into an automobile cup holder.

The shrink film that is wrapped about the package in the packaged configuration can provide tamper evidence. In one embodiment, the film extends at least part of the way down the primary container and includes a line of weakness (perforations or the like) permitting an upper part of the film to be detached from a lower part so that the upper 5 part can be removed to convert the package into the serving configuration. The lower part of the film remains on the primary container. The film can be printed with visual elements such as indicia or graphics.

In a preferred embodiment of the invention, the cup holder and primary container have cooperating locking features that engage each other when the package is in the 10 serving configuration to lock the primary container into the cup holder. The locking features can comprise one or more projections and recesses. For example, in a preferred embodiment the inner surface of the cup holder defines a circumferential groove and the outer surface of the primary container defines a circumferential ridge or raised region that engages the groove of the cup holder. There can be more than one groove and ridge 15 axially spaced apart. The groove(s) and/or ridge(s) can extend completely or partially about the circumference.

#### BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)

Having thus described the invention in general terms, reference will now be made 20 to the accompanying drawings, which are not necessarily drawn to scale, and wherein:

FIG. 1 is a perspective view of a package in accordance with a first embodiment of the invention, shown in the packaged configuration prior to initial opening of the package;

25 FIG. 2 is a cross-sectional view of the package taken on line 2-2 in FIG. 1;  
FIG. 3 is a perspective view showing the package in the serving configuration;

FIG. 4 is a cross-sectional view taken on line 4-4 in FIG. 3;

FIGS. 5A through 5D depict a series of steps for converting the package from the packaged configuration to the serving configuration;

30 FIG. 6 is a cross-sectional view of a package in accordance with a second embodiment of the invention;

FIG. 7 shows a cup holder of the package in accordance with yet another embodiment of the invention;

FIG. 8A is a perspective view of a package in accordance with a still further embodiment of the invention; shown in the packaged configuration;

5 FIG. 8B shows the primary container of the package of FIG. 8A after the cup holder has been removed;

FIG. 9 is a perspective view of a package in accordance with still another embodiment of the invention;

FIG. 10 is a cross-sectional view along line 10-10 in FIG. 9; and

10 FIG. 11 shows a stack of nested packages as depicted in FIG. 9.

#### DETAILED DESCRIPTION OF THE INVENTION

The present inventions now will be described more fully hereinafter with reference to the accompanying drawings, in which some, but not all embodiments of the invention are shown. Indeed, these inventions may be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will satisfy applicable legal requirements. Like numbers refer to like elements throughout.

20 A package 10 in accordance with a first embodiment of the invention is shown in FIGS. 1 through 4. The package comprises a primary container 20 formed as a tapered plastic cup, and a cup holder 30 also formed as a tapered plastic cup. The primary container 20 includes a bottom wall 22, a generally conical side wall 24 that is integrally formed with and projects upward from the bottom wall, and a rim 26 formed at the top 25 end of the side wall. The rim 26 projects radially outwardly from the side wall 24, and can have various forms; in the illustrated embodiment the rim is a flat flange, but alternatively the rim could be rolled or otherwise configured. The primary container also includes a pair of raised regions or ridges 28 that extend about the circumference of the side wall 24 near the bottom wall 22 and project radially outwardly from the side wall. 30 As further described below, these ridges 28 cooperate with features on the cup holder 30.

The cup holder 30 includes a bottom wall 32 and a generally conical side wall 34 that is integrally formed with and projects upward from the bottom wall. At the top end of the side wall 34, a flange 35 projects radially outwardly and is joined at its outer edge to a skirt 36 that depends from the flange. The skirt flares slightly outwardly toward its lower end. An outwardly projecting flange 37 extends from the lower end of the skirt. Between the side wall 34 of the cup holder and the skirt 36, an annular channel 38 is defined. A pair of circumferential grooves 39 are formed in the inner surface of the cup holder 30 for cooperating with the ridges 28 of the primary container, as further described below.

The package 10 is convertible between a packaged configuration as shown in FIGS. 1 and 2, and a serving configuration as shown in FIG. 3 and 4. The packaged configuration is the configuration in which the package is filled and sealed by the food packager, and in which the package is shipped to a retail store and displayed. In the packaged configuration, the cup holder 30 is nested inside the primary container 20; the cup holder and primary container are suitably configured to allow such nesting, for example by virtue of the cone half-angle of their side walls 24, 34 being substantially the same, and their bottom walls 22, 32 having substantially the same outer diameter. The rim 26 of the primary container is received up into the channel 38 of the cup holder; a snap fit between the rim and the cup holder can be provided, if desired, to resist inadvertent separation of the cup holder and primary container.

In the embodiment of FIGS. 1-4, a food product 40 is contained in the cup holder 30 in the packaged configuration of the package. The food product can be of various types, including but not limited to instant coffee power or crystals, powdered drink mix of other types, dry soup mix, cocoa powder, etc., to which liquid (e.g., hot or cold water, milk, etc.) is added to prepare the food product for consumption. To seal the food product in the cup holder, the package preferably includes a membrane 42 that is attached by any suitable method (including heat-sealing, adhesively attaching, etc.) to the flange 35 of the cup holder. The cup holder 30 can be formed to provide a barrier against the passage of moisture and oxygen; for example, the cup holder can be formed of a multi-layered material wherein at least one layer comprises a barrier material. The membrane

42 likewise can serve as a gas and/or moisture barrier, as well as preventing the food product from escaping the cup holder and preventing foreign matter from infiltrating the cup holder after the package is initially filled and sealed. The membrane 42 can be a single-layer or multi-layer structure including suitable polymer, foil, and/or paper layers 5 as required for the particular needs of the package.

The package 10 also includes an outer wrapper 44 that is wrapped about the upper ends of the cup holder and primary container. The wrapper 44 can serve to prevent the cup holder and primary container from being detached from each other until the consumer opens the package, as well as to provide an indication of tampering. The 10 wrapper 44 preferably is a shrink film that is heat-shrunk about the package so that it tightly surrounds the package in such a manner that removing it can be accomplished only by breaking it, similar to shrink wraps or bands used on other types of packaging.

As depicted in FIGS. 5A through 5D, when the consumer desires to consume the food product, the wrapper 44 is removed and the cup holder 30 is removed from the 15 primary container 20 (FIG. 5B); the membrane 42 is peeled off the cup holder 30 and the food product 40 is poured into the primary container (FIG. 5C); and the primary container 20 is nested into the cup holder 30 and liquid is added to the primary container and mixed with the food product.

FIG. 4 shows the package in the serving configuration. The bottom wall 22 of the 20 primary container 20 is in substantially abutting relation with the bottom wall 32 of the cup holder. The ridges 28 of the primary container 20 engage the grooves 39 in the inner surface of the cup holder 30 in a snap-fit fashion so as to “lock” the primary container in the cup holder, although the snap-fit only resists rather than completely prevents detachment; the primary container can be removed from the cup holder by pulling 25 upward on it with sufficient force to deform the ridges 28 and grooves 39.

FIG. 6 depicts a package 10' in accordance with another embodiment of the invention. The package includes a primary container 20 and cup holder 30 substantially as previously described. In this embodiment, however, the food product 40 is contained in the primary container 20 in the packaged configuration. The primary container can be

formed to provide a barrier against the passage of moisture and oxygen; for example, the primary container can be formed of a multi-layered material wherein at least one layer comprises a barrier material. The food product is contained in a space between the bottom wall 22 of the primary container and the bottom wall 32 of the cup holder; this  
5 space is provided by virtue of the cup holder being shorter in length than the primary container. The package also includes an outer wrapper 44' that tightly surrounds the upper ends of the primary container and cup holder to keep them from coming apart and to provide tamper evidence, as in the previously described embodiment. In this embodiment, the wrapper 44' can also serve the function of sealing the food product 40  
10 against infiltration of moisture and/or oxygen, if such a barrier is required for the food product. The wrapper can incorporate any suitable barrier material for moisture and/or oxygen.

FIGS. 8A and 8B depict a package 10" in accordance with yet another embodiment of the invention. The package includes a primary container 20 and cup holder (not visible) substantially as described in the previous embodiments, and a wrapper 44" that tightly surrounds the upper ends of the primary container and cup holder to hold them together. The wrapper can also provide a barrier function, if needed, as well as tamper evidence. In this embodiment, the wrapper includes a line of weakness 46, such as a line of perforations, which permits an upper part 48 of the wrapper above  
15 the line 46 to be severed from a lower part 50 of the wrapper below the line and removed from the package. The lower part 50 of the wrapper thus remains on the primary container 20. FIG. 8B shows the primary container 20 after the cup holder has been removed from it. The lower part 50 of the wrapper can include visual elements 52, such as indicia as shown, and/or graphic elements. The positioning of the lower part 50 of the  
20 wrapper and the visual elements 52 can be such that the visual elements remain visible above the top of the cup holder when the primary container is inserted into the cup holder.  
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FIG. 7 shows an alternative embodiment of a cup holder 30' in accordance with the invention. The cup holder 30' is generally the same as the cup holder previously  
30 described, except that the side wall 34 includes ribs 54 that project radially inwardly from

the inner surface of the side wall. The ribs 54 are configured to abut the outer surface of the primary container when the package is in the serving configuration as in FIGS. 3 and 4. The ribs thus ensure that there is an air space between the cup holder and the primary container, thereby thermally isolating the cup holder from the primary container. This is especially beneficial when the primary container is used for hot beverages or foods that would make the primary container too hot to be comfortably held in the hand.

The outer wrapper or shrink band of the previously disclosed embodiments extends fully across the top end of the package. However, this would prevent nesting of multiple packages. In another embodiment of a package 110 shown in FIGS. 9 through 11, the packages are configured to be nestable in a stack. The package 110 includes a primary container 120 and cup holder 130 substantially as previously described. The food product 40 is contained in the primary container 120. The two components are held together and the package is sealed by an outer wrapper or shrink band 144 that does not extend fully across the top end of the cup holder. The inner or upper edge 146 of the band 144 extends partially over the top of the cup and closely fits against the inner surface at the top end of the cup holder. Accordingly, the cup holder remains open at the top. Therefore, multiple packages 110 can be nested in a stack as shown in FIG. 11. In this embodiment, the cup holder and primary container can both incorporate a barrier material to resist passage of moisture and/or oxygen, as can the shrink band.

In the various embodiments described above, the primary container and cup holder advantageously are formed of a suitable plastic material. Thermoplastic materials that are certified by applicable regulatory agencies for food contact can be used, such as polypropylene, polyethylene, polystyrene, and others. These parts can be formed by various techniques. One advantageous technique is thermoforming.

Many modifications and other embodiments of the inventions set forth herein will come to mind to one skilled in the art to which these inventions pertain having the benefit of the teachings presented in the foregoing descriptions and the associated drawings. Therefore, it is to be understood that the inventions are not to be limited to the specific embodiments disclosed and that modifications and other embodiments are intended to be

included within the scope of the appended claims. Although specific terms are employed herein, they are used in a generic and descriptive sense only and not for purposes of limitation.